IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (canceled)

Claim 2 (canceled)

Claim 3 (currently amended) ~~The method of Claim 2,~~ A method of forming a high-resistance seal between a biological membrane and an electrode aperture in a partition separating an extracellular compartment from an intracellular compartment in a perfusion chamber, comprising the following steps:

delivering an extracellular solution with a biological membrane into said extracellular compartment;

withdrawing the extracellular solution from the extracellular compartment while preventing flow of extracellular solution into the intracellular compartment through the electrode aperture;

directing the extracellular solution and the biological membrane toward the electrode aperture;

monitoring the position of the biological membrane in relation to the electrode aperture; and,

as the biological membrane approaches the electrode aperture, inducing fluid flow from the extracellular compartment into the intracellular compartment through the electrode aperture so as to attract the biological membrane to the

electrode aperture and produce the formation of a seal between the biological membrane and the electrode aperture;

wherein said step of directing the extracellular solution and the biological membrane toward the electrode aperture is carried out by passing the extracellular solution and the biological membrane through a funnel structure having an opening facing the electrode aperture.

Claim 4 (original) The method of Claim 3, wherein said step of withdrawing the extracellular solution from the extracellular compartment is carried out by withdrawing the extracellular solution through said opening facing the electrode aperture.

Claim 5 (original) The method of Claim 4, wherein said step of withdrawing the extracellular solution through said opening facing the electrode aperture is performed by applying suction to the opening.

Claim 6 (currently amended) ~~The method of Claim 1,~~ A method of forming a high-resistance seal between a biological membrane and an electrode aperture in a partition separating an extracellular compartment from an intracellular compartment in a perfusion chamber, comprising the following steps:

delivering an extracellular solution with a biological membrane into said extracellular compartment;

withdrawing the extracellular solution from the extracellular compartment while preventing flow of extracellular solution into the intracellular compartment through the electrode aperture;

monitoring the position of the biological membrane in relation to the electrode aperture; and,

as the biological membrane approaches the electrode aperture, inducing fluid flow from the extracellular compartment into the intracellular compartment through the electrode aperture so as to attract the biological membrane to the electrode aperture and produce the formation of a seal between the biological membrane and the electrode aperture;

wherein said step of preventing flow of extracellular solution into the intracellular compartment through the electrode aperture is performed by applying pressure to the intracellular compartment.

Claim 7 (currently amended) The method of Claim 6, wherein said step of ~~reversing the direction of fluid flow~~ inducing fluid flow from the extracellular compartment into the intracellular compartment through the electrode aperture so as to attract the biological membrane to the electrode aperture and to produce the formation of a seal between the biological membrane and the electrode aperture is carried out by changing said pressure to suction applied to the intracellular compartment.

Claim 8 (currently amended) The method of Claim ~~1~~6, wherein said step of monitoring the position of the biological membrane in relation to the electrode aperture is carried out by sensing a change in electrical resistance across the electrode aperture.

Claim 9 (currently amended) The method of Claim ~~1~~6, further including the step of monitoring a direction of fluid flow through the electrode aperture by sensing a change in electrical resistance across the electrode aperture.

Claim 10 (currently amended) The method of Claim ~~1~~6, further including the step of providing suction from the intracellular compartment after the formation of said seal between the biological membrane and the electrode aperture to cause a rupture of the biological membrane.

Claim 11 (original) The method of Claim 10, wherein said suction may be pulsatile.

Claim 12 (currently amended) The method of Claim ~~1~~6, wherein said biological membrane includes an animal cell.

Claim 13 (currently amended) The method of Claim ~~2~~3, wherein said step of directing the extracellular solution and the biological membrane toward the electrode aperture is carried out

by passing the extracellular solution through a second aperture adjacent to the electrode aperture.

Claims 1-34 (canceled)

Claim 35 (new) The method of Claim 3, wherein said step of inducing fluid flow from the extracellular compartment into the intracellular compartment through the electrode aperture so as to attract the biological membrane to the electrode aperture and to produce the formation of a seal between the biological membrane and the electrode aperture is carried out by applying suction to the intracellular compartment.

Claim 36 (new) The method of Claim 3, wherein said step of monitoring the position of the biological membrane in relation to the electrode aperture is carried out by sensing a change in electrical resistance across the electrode aperture.

Claim 37 (new) The method of Claim 3, further including the step of monitoring a direction of fluid flow through the electrode aperture by sensing a change in electrical resistance across the electrode aperture.

Claim 38 (new) The method of Claim 3, further including the step of providing suction from the intracellular compartment after the formation of said seal between the biological membrane

and the electrode aperture to cause a rupture of the biological membrane.

Claim 39 (new) The method of Claim 38, wherein said suction may be pulsatile.

Claim 40 (new) The method of Claim 3, wherein said biological membrane includes an animal cell.

Claim 41 (new) A method of forming a high-resistance seal between a biological membrane and an electrode aperture in a partition separating an extracellular compartment from an intracellular compartment in a perfusion chamber, comprising the following steps:

delivering an extracellular solution with a biological membrane into said extracellular compartment;

withdrawing the extracellular solution from the extracellular compartment while preventing flow of extracellular solution into the intracellular compartment through the electrode aperture;

monitoring the position of the biological membrane in relation to the electrode aperture; and,

as the biological membrane approaches the electrode aperture, inducing fluid flow from the extracellular compartment into the intracellular compartment through the electrode aperture so as to attract the biological membrane to the

electrode aperture and produce the formation of a seal between the biological membrane and the electrode aperture;

wherein said step of preventing flow of extracellular solution into the intracellular compartment through the electrode aperture is performed by inducing fluid flow from the intracellular compartment into the extracellular compartment through said electrode aperture.

Claim 42 (new) The method of Claim 41, wherein said step of inducing fluid flow from the extracellular compartment into the intracellular compartment through the electrode aperture so as to attract the biological membrane to the electrode aperture and to produce the formation of a seal between the biological membrane and the electrode aperture is carried out by applying suction to the intracellular compartment.

Claim 43 (new) The method of Claim 41, wherein said step of monitoring the position of the biological membrane in relation to the electrode aperture is carried out by sensing a change in electrical resistance across the electrode aperture.

Claim 44 (new) The method of Claim 41, further including the step of monitoring a direction of fluid flow through the electrode aperture by sensing a change in electrical resistance across the electrode aperture.

Claim 45 (new) The method of Claim 41, further including the step of providing suction from the intracellular compartment after the formation of said seal between the biological membrane and the electrode aperture to cause a rupture of the biological membrane.

Claim 46 (new) The method of Claim 45, wherein said suction may be pulsatile.

Claim 47 (new) The method of Claim 41, wherein said biological membrane includes an animal cell.